BULLETIN

of the

ONTARIO COLLEGE OF PHARMACY

Vol. V, No. 2 | TORONTO, Ontario | March, 1956

H. J. Fuller, Editor

CONTENTS

		Page
Might It Happen Here		
Parenteral Therapy	L. N. Elowe	23
Hospital Pharmacy Survey—Part III	H. J. Fuller and I. E. Stauffer	28
Some Afterthoughts on Fees	H. M. Corbett	34
Worth Watching?	H. J. Fuller	35
Careers	H. M. Corbett	37
Do You "Dispense" with Accuracy?	D. R. Kennedy	38
New Awards in the Faculty of Pharmacy	F. N. Hughes	39
Popularity of the Bulletin		40

Massive Salicylotherapy . . . **without gastric intolerance**

ACTYLAMIDE

Acetyl-salicyl-salicylamide 0.50 gm. per tablet.
NO ADJUVANT • NO CORRECTIVE
Acute articular rheumatism. Chronic polyarthritis. Neuralgia.

Average dose: 6 to 8 tablets per day.

Also . . . **ACTYLAPHEN**

Actylamide + phenobarbital (8 mg. per tablet.)
Bottles of 100, 500 and 1000 tablets

Over half a century of devotion to medical and pharmaceutical advance in Canada.

MIGHT IT HAPPEN HERE?

OVER-THE-COUNTER SALES

Los Angeles, Calif.—Refilling prescriptions for amphetamine without physicians' authorizations. Firm and one defendant fined $1,000 each; 2 defendants fined $200 each; each defendant given a 1 year suspended jail sentence and placed on probation for 6 months.

Miami, Fla.—Refilling prescriptions for amphetamine, cortisone, and sulfonamides without physicians' authorizations. Fined $100 and placed on probation for 2 years.

Terre Haute, Ind.—Refilling prescriptions for amphetamine and sulfonamides without physicians' authorizations. Firm fined $150; individuals fined a total of $300 and court costs.

Revere, Mass.—Selling and refilling prescriptions for amphetamine, barbiturates, Ergotrate Maleate, hormones, and penicillin, without physicians' authorization. Owner fined $600; employee fined $400; each individual given a 2 month suspended jail sentence and placed on probation for 1 year.

Revere, Mass.—Selling and refilling prescriptions for amphetamine, barbiturates, hormones, and penicillin without physicians' authorization. Firm fined $500; each individual fined $200.

Detroit, Mich.—Selling hormones without physicians' prescription. Each defendant fined $1,000 and given a 1 year suspended jail sentence.

Tupelo, Miss..—Selling penicillin without physicans' prescriptions. Fined $50.

Butte, Mont.—Selling barbiturates and tablets containing various mixtures of drugs, limited to prescription sale, without physicians' prescriptions. Each defendant fined $100, given a 6 month suspended jail sentence, and placed on probation for 3 years.

Omaha, Nebr.—Selling tablets containing various mixtures of penicillin, sulfonamides and other drugs limited to prescription sale without physicians' prescriptions. Owner fined $175 and court costs of $22.27; employee fined $100 and court costs of $12.73.

Manasquan, N.J.—Refilling prescriptions for barbiturates, Veriloid, Butazolidin, and sulfonamides without physicians' authorization. Fined $500 and placed on probation for 2 years.

New York, N.Y.—Selling amphetamine, penicillin, and sulfonamides without physicians' prescriptions. Fined $250. (Terminated in August but not previously reported).

Reading, Pa.—Selling ergot-apiol without physicians' prescriptions. Firm fined $150; owner fined $300.

Fountain City, Tenn.—Selling amphetamine and barbiturates without physicians' prescriptions. Owner fined $350; employee fined $150.

Houston, Tex.—Selling penicillin and sulfonamides without physicians' prescriptions. Given a 90 day suspended jail sentence and placed on probation for 3 years.

Reprinted from the Journal of the American Pharmaceutical Association, Practical Pharmacy Edition, November, 1955.

BULLETIN

of the

ONTARIO COLLEGE OF PHARMACY

Vol. V, No. 2 | TORONTO, Ontario | March, 1956

H. J. Fuller, Editor

The Ontario College of Pharmacy is the pharmaceutical licensing body for the Province of Ontario, Canada. All pharmacists licensed in Ontario are *IPSO FACTO* members of the College.

The majority of contributors to the Bulletin are members of the Faculty of Pharmacy, University of Toronto. However, contributions are welcomed from all members of the College.

Published five times a year, January, March, May, September and November by the authority of the Council of the Ontario College of Pharmacy.

Editorial Office, 46 Gerrard St. East, Toronto 2, Ontario

Circulation 3800

Authorized as second class mail, Post Office Department, Ottawa.

ABOUT THE CONTRIBUTORS

F. N. HUGHES, Phm.B. (Tor.), B.Sc. in Phar. (Purdue), M.A. (Tor.), LL.D. (Purdue). Dean.

HORACE J. FULLER, Phm.B. (Tor.), B.A. (West), M.A. (Yale), Professor of Pharmacy Administration.

LOUIS N. ELOWE, Ph.C. (Royal College of Pharmacy, Baghdad, Iraq), M.S., Ph.D. (Wis.) Assistant Professor of Pharmacy.

DAVID R. KENNEDY, Phm.B., B.Sc.Phm. (Tor.), Ph.D. (Fla.).

MRS. I. E. STAUFFER, B.Sc. (Pharm.) (Alta.), M.Sc. (Western Reserve), Special Lecturer in Hospital Pharmacy.

H. M. CORBETT, Phm.B. (Tor.), Registrar.

PINWORM AND ROUNDWORM INFESTATION

cured in over 90% of cases

"VERMISOL"
BRAND OF PIPERAZINE HEXAHYDRATE

Easy-to-take, well-tolerated, relatively non-toxic, safe, effective and free from staining associated with gentian violet. Its lack of toxicity when taken in the correct dosage makes it a desirable therapeutic agent.

FOR INFANTS AND CHILDREN

"VERMISOL" SYRUP
Syrup No. 634 Frosst

Each 5 cc. teaspoonful contains:

Piperazine hexahydrate..... 500 mg.
(as tartrate)

FOR ADULTS AND OLDER CHILDREN

"VERMISOL" TABLETS
Tablet No. 807 Frosst

Each tablet contains:

Piperazine hexahydrate..... 250 mg.
(as tartrate)

DOSAGE:

Infants up to 15 lbs.	½ teaspoonful (2.5 cc.) or 1 tablet	Once daily
Children up to 30 lbs.	½ teaspoonful (2.5 cc.) or 1 tablet	Twice daily
Children 30 to 60 lbs.	1 teaspoonful (5 cc.) or 2 tablets	Twice daily
Children over 60 lbs. and adults	2 teaspoonfuls (10 cc.) or 4 tablets	Twice daily

For Pinworms: Vermisol may be administered for 14 consecutive days or, alternatively, for two 7-day courses one week apart.

For Roundworms: One, 5 to 7-day course of treatment is usually sufficient.

CAUTION: With overdosage the following reactions may occur: nausea, giddiness, lack of co-ordination, flashes on closing the eyes, inability to focus vision and a sense of detachment. These untoward effects are temporary and disappear when medication is discontinued.

Charles E. Frosst & Co.
MONTREAL CANADA

PARENTERAL THERAPY

Dr. Louis N. Elowe

Of the many pharmaceutical dosage forms today parenteral therapy occupies perhaps the most prominent place. It is one of the most commonly used forms of therapy because of the rapidity of the initiation of the action of the drug that is being administered. While this quick action is a great advantage when immediate response to the medication is necessary, parenteral therapy suffers from the important disadvantage in that quick diffusion of the drug to its site of action is usually accompanied by a proportionately short duration of action due to the more rapid elimination of the medicament from the system.

When the different forms of parenteral injections are equally suitable in that there is no objection to administering the drug subcutaneously, intramuscularly or intravenously, etc., the above disadvantage is rendered a little less important by the choice of the form that gives a more prolonged action of the medicament. This is of course not always feasible because of the unsuitability of certain drugs to be administered by one or another of the injection routes, due to possible irritation to the tissue as in the case of arsphenamine if given intramuscularly, or to the volume that is being injected or other reasons that make the choice of a particular route imperative.

Elimination of the drug in most cases is proportional to the rate of its liberation from the 'base' in which it is incorporated. This would apply to all forms of medication, whether ointments, injections, plasters, poultices, creams, tablets, suppositories or any other form. To control this rate of liberation of the drug is then one of the most urgent problems that pharmacists and pharmaceutical manufacturers have to solve in the process of the preparation of any of the numerous dosage forms. The problem resolves itself into one of formulation.

A good formulation has as its ultimate aim a maintenance of the required concentration of the drug at its site of action for the longest possible period without resort to frequent application of the medicament. To maintain such a concentration is perhaps one of the most difficult problems that industry has to contend with these days. A solution of any problem in formulation requires an extensive knowledge of the biological, physical and chemical sciences and an intimate collaboration of workers in these and other fields for the ultimate presentation of a suitable preparation. Laws are made and theories are formed, with numerous assumptions most of the time, dealing with non-living matter. When living matter on the other hand is dealt with, the investigator would often admit that the problem is much more complicated than the 'in vitro' already very complicated one.

The purpose of any drug is to reach its site of action and exert its therapeutic effect there. It is the aim of the compounder of any formula to achieve this end. This entails a suitable route of administration, frequency with which the medicament is going to be administerd and the choice of an approprite 'vehicle' in which the drug is to be incorporated so that the best desired effects can be achieved.

Physico-chemical laws play an important role in the explanation of the passage of drugs to the locality of action and even when that locality is reached, it is physical chemistry most of the times that furnishes us with theories at least, if not facts, about how the drug would exert its action. Diffusion and its numerous simple, complicated (and sometimes mathematically gigantic) formulae and equations can claim no field where it is better applied than in the administration of drugs in the living body and their subsequent passage to their goal. Diffusion is the basic phenomenum that governs the release of the drug from its vehicle and its penetration into the tissues, no matter what the form of the medication is.

Parenteral injections lend themselves perhaps to more physico-chemical laws and explanations than any other pharmaceutical form of administration. In addition to the processes of diffusion, other physico-chemical laws are applied in the preparation of the injectable forms when the questions of isotonicity, buffering, solubility in different vehicles. the viscosity of the preparation, stability of the injection, etc. arise. It is certainly a big problem to write the formula for an injection and do justice at the same time to each and every question that arises. One can buffer the injectable form to the pH of the blood relatively easily but the drug might not have its best required solubility at that particular pH. Salt effects will enter the picture when isotonic solutions are made. The viscosity of the vehicle that is best suitable for the drug in suspension might not be the best viscosity desired when the release of the drug from its vehicle is the problem under consideration. It is perhaps superfluous to mention the various problems that have to be solved when the stability of the injectable form is to be maintained in the process of sterilization. These and other problems are but some of the common difficulties encountered when formulating a parenteral preparation.

It is not the purpose in this article to go into the laws and theories that deal with the buffering, isotonicity, stability, sterilization, etc. of injectable forms. The problem of the diffusion and permeability of the drug is to be considered, and this only very briefly, without entering into mathematical discussion of the formulae that govern the physico-chemical aspects of parenteral medication. It is, however, appropriate to mention that diffusion of a substance from one phase to another is dependent upon the cross-sectional area of the diffusion column, the concentration gradient and the diffusion constant. Several factors affect the diffusion constant (which is characteristic of the solute molecules) such as temperature, electrostatic charges and shape of particles, whether spherical or assymetric.

Permeability of Drugs: There has been little study of the permeability of drugs. Recently, some theoretical studies have been made which enable the calculation of the relative permeability of cells to different molecular structures, of course only to a first approximation. The permeability problems inherent in the study of drug

action are far from limited to those studied in the permeability of cell membranes. Frequently, the problem of access to an organ constitutes a major difficulty.

Some of the problems involved are:

(1) Peculiar permeability properties which prevent a drug from reaching a particular organ e.g. the brain.

(2) Securing an effective concentration in one organ may involve a toxic concentration in another.

There are certain general procedures at the present time to combat the above difficulties:

a—To modify the rate at which the drug may permeate an organ by simple diffusion. For example, if a drug is needed to permeate the central nervous system, its lipoid solubility should be increased as by esterification. Its polar properties should be increased, on the other hand, if we want to prevent it from reaching the central nervous system, as by combining it with glucose and administering it in the form of its glucoside.

b—To modify the structure of the drug so that it will be easier or more difficult to fit into the secretory pattern of certain organs. For example, a drug may be combined with cholic acid to ensure a sure secretion by the liver cells. If an increased secretion by the kidney is desired, this may be brought about by increasing the polar-non-polar symmetry of the molecule.

c—To administer a drug which is active only at selected sites. An example of this can be found in the administration of arsphenamines. A high percentage of arsenoxide is needed before arriving at a therapeutic level in the central nervous system. But this high concentration will be injurious to other organs. If the drug is administered in the form of arsphenamine, it penetrates into the central nervous system relatively readily where it breaks and liberates the therapeutically active arsenoxide in a concentration high enough for pharmacological effect without any untoward results in other organs. It is, of course, possible to combine several of the above mentioned devices to reach optimal results.

In what follows will be discussed certain physico-chemical aspects involved currently in the formulation of an injectable preparation. The following are points to be considered:

(a) decrease the rate of liberation of the drug from its vehicle.

(b) maintain an effective therapeutic concentration in the blood plasma.

(c) keep this beneficial concentration over a prolonged period.

(d) use minimum number of injections to arrive at the required results.

The chief factors determining the rate of absorption from a given intramuscular or subcutaneous injection are:

1. The site of injection.
2. The nature of the blood circulation at the site of injection.
3. Distribution coefficient of the drug between the vehicle and the receptor 'tissue fluid'.
4. The surface area of the injected medicament 'reservoir'.

Site of injection: Intramuscular injections are absorbed faster than the subcutaneous.

The local blood circulation is a factor affecting the rate of absorption of a drug from a reservoir. Also affecting this absorption is the local massage and the diffusion gradient of the drug between the injection vehicle and the intracellular fluid. Heat is thus seen to accelerate absorption, owing to dilation of the blood vessels, whereas ice will retard absorption. One very important example where the nature of the local circulation affects the rate of absorption can be seen from the common addition of adrenalin (a vasoconstrictor) to local anesthetics. Adrenalin limits the action of the anesthetic to a small area.

It is generally agreed that absorption is greater when the drug is water soluble. One sure way of slowing down absorption then is to render the drug less water soluble by complex formation, esterification or other means. It can then be incorporated in an injectable form as a suspension or even as solution in other solvents from which the drug would precipitate at the site of injection as it comes in contact with the tissue fluids. An example of this kind of procedure can be cited in the conversion of penicillin to some insoluble salts such as aluminum, copper, iron, etc . . .

Esterification of steroids, and thus increasing their oil/water distribution coefficients, is another example of slowing down the rate of release of the drug at the site of injection. A still further example is found in the combination of insulin with protein in the form of Globin Insulin or Protamine Insulin which are less soluble than the free insulin. An interesting factor in these preparations of insulin is pH. Protamine insulin is used in the form of a suspension buffered at pH 6.9 - 7.3 which is the range of minimum solubility. This form has a more prolonged effect than a corresponding dose of simple insulin in addition to a more uniform release of the drug. Globin insulin, on the other hand, is administered in the form of a clear, acid aqueous solution, the complex being precipitated on coming in contact with the less acidic cellular fluids. The action of the above two preparations is prolonged even further by the addition of slight amounts of zinc chloride.

Streptomycin 'insulinate' is another complex arising from the desire to prolong the action of the drug.

Another approach to the problem is cited in rendering insoluble (by immersion in an acetone solution of formaldehyde) a protein penicillin complex. This finely powdered complex can be given, suspended in propylene glycol, subcutaneously for maintenance of prolonged serum penicillin levels.

Complex formation is not limited to proteins. Many organic compounds and ions have the similar effect of insolubilizing drugs and, therefore, prolonging their action by modification of the rate of their release. As an example of this can be cited procaine penicillin.

Solubility of the Vehicle in Tissue Fluids:

Emulsion form of injections is a way for prolonging the duration of the action of a drug. Preparation of oily suspensions was one of the first methods used with this aim in view. Insulin was one of the first drugs to be suspended in oil for injection purposes. This was followed by a variety of other drugs similarly administered. It has

been found, however, that this method does not give an adequately prolonged action or a sufficiently uniform rate of release.

Water in oil emulsions has been used as a means of controlling the release of water soluble drugs. This form has been utilized, with good results, in the cases of insulin, iodine, posterior lobe pituitory extract and some other drugs.

Viscosity of the Vehicle: Increasing the viscosity of aqueous injections is another means of prolonging action. Morphine salts have been given with high percentages of gelatin. Some of these injections, because of their high viscosity, may require heating before injection.

One of the common vehicles that has come into use for prolongation of the action of a drug is Pitkin's menstrum which consists of an aqueous solution of:

Gelatin	12 - 30%
Dextrose	5 - 12%
Acetic Acid	0.3-1.5%

This vehicle has been used for ephedrine, morphine, herparin, etc...

Mixtures of polyvinyl alcohols have been reported for prolongation of action. Polyvinylpyrrolidone must not be forgotten in this connection. It too has been utilized for prolonged action 'reservoir' therapy.

Effect of Solvent on Rate of Release of Drug:

a.—Solvent immiscible with water: In such a case, the rate of diffusion from the reservoir will be governed by the solvent/water (tissue fluid) distribution coefficient. The higher this coefficient is in favor of the oil, the slower is the release of the drug from the reservoir.

b.—Solvent miscible with water: When a water insoluble drug is dissolved in a water-miscible solvent, such as propylene glycol, the solvent will be rapidly diluted by the tissue fluid after injection and thus the water insoluble drug is precipitated.

Surface Area of the Reservoir: The rate of release of the drug is governed by the surface area, and not by the volume, of the injected globules. If a given volume is divided and injected into more than one site, a more rapid release is observed. For slow release, then, the whole volume should be injected in one site so as to have the minimum surface area.

Implantation Pellets: Implantation pellets have behind them the rationale of 'reservoir' therapy by slow release of the drug.

Increasing rate of absorption: It must be mentioned that sometimes increased rate of the release of the drug is desired. The enzyme hyaluronidase produces a spreading of the fluids that are injected subcutaneously and therefore more rapid absorption. This enzyme has been used with local anesthetics to increase the area of action which is necessarily shorter because of the accelerated absorption.

In the above discussion, some aspects of diffusion and permeability of drugs have been exposed with special reference to injectable materials. It must be borne in mind, however, that when dealing with living matter, the application of these laws is often much more complicated than it may seem at the first glance. Consequently, a very careful and judicious study of all the problems involved is of prime importance in order to achieve optimal results.

L. N. ELOWE

HOSPITAL PHARMACY SURVEY

Part III

The cooperation of 348 hospital administrators from Newfoundland and Prince Edward Island to the Yukon which made this survey possible has been exceedingly satisfying, even an exciting experience. We regret that space does not permit the publication of the complete data and its analysis in one issue of the Bulletin. However, it is our expectation that this will be possible in some publication with a circulation among hospital administrators.

Statistics often reveal unexpected facts. Undoubtedly most of us assume that women are in the majority among hospital pharmacists. Our survey reveals the opposite. The next two pages give the distribution by bed capacity, of full time pharmacists, assistant pharmacists, part time pharmacists, apprentices, and non- professional personnel employed by 168 or 84% of Canadian hospitals with 50 beds or more employing a pharmacist.

The chart on the inside of the back cover of this issue is Chart 1 of the January issue brought up to date. Not only have we received more replies from hospitals employing pharmacists but we have discovered 23 hospitals listed in the Hospital Directory as employing pharmacists that do not do so. A short explanation of our methodology may be in order. Once a year, usually in April, the Canadian Hospital Association publishes a directory of all hospitals in Canada, giving the bed capacity and the names of important personnel.

DISTRIBUTION OF HOSPITAL PHARMACISTS BY PROVINCES

	Alberta	British Columbia	Manitoba	New Brunswick	Newfoundland	Nova Scotia	Ontario	Prince Edward Island	Quebec	Saskatchewan	Total
MEN, Full Time	11	30	8	6	2	8	71	....	21	15	172
MEN, Part Time	4	1	....	....	....	....	1	....	1	....	7
WOMEN, Full Time	11	5	6	3	....	11	54	1	38	10	139
WOMEN, Part Time	....	1	....	....	....	....	1	....	....	....	2
									TOTAL		320

NUMBER OF PHARMACISTS PER HOSPITAL

	Part Time	1	2	3	4	5	6	7	8	9	Total
Alberta	4	7	3		1	1					16
British Columbia	2	7	2	3	2			1			17
Manitoba		6	2		1						9
New Brunswick		5	2								7
Newfoundland			1								1
Nova Scotia		7	4		1						12
Ontario	1	35	11	5	3	3	3		1		62
Prince Edward Island		1									1
Quebec	1	13	9	1	2				1	1	28
Saskatchewan		11	2		1		1				15
Yukon & North West Territories											
	8	92	36	9	11	4	4	1	2	1	168
Percentage of hospitals to all hospitals reporting employment of pharmacists	4.8 %	54.8 %	21.4 %	5.3 %	6.5 %	2.4 %	2.4 %	0.6 %	1.2 %	0.6 %	100 %

M—MEN

W—WOMEN

Short Term Hospitals

	Bed Capacity	Alberta		British Columbia		Manitoba		New Brunswick		Newfoundland		Nova Scotia		Ontario		Prince Edward Island		Quebec	
		M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W
Pharmacists		....	1	1	1	....	....	....	....	....	....	1	2	2	1	....	....	....	1
Assist. Pharmacists	50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pharm. part time	to	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Apprentices	99	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Non-professional		....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	2
Pharmacists		....	1	....	....	....	1	1	....	....	....	....	....	2	5	....	....	3	2
Assist. Pharmacists	100	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Pharm. part tme	to	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Apprentices	149	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Non-professional		....	....	....	....	....	....	....	....	....	....	....	....	2	4	....	....	1	....
Pharmacists		....	2	1	....	2	....	1	....	....	....	1	1	8	8	....	....	2	1
Assist. Pharmacists	150	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....
Pharm. part time	to	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Apprentices	199	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Non-profesional		....	1	....	1	....	1	....	....	....	....	....	2	1	10	....	....	....	2
Pharmacists		2	2	....	....	2	2	....	1	....	....	....	....	2	2	....	....	....	2
Assist. Pharmacists	200	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Pharm. part time	to	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....
Apprentices	399	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Non-professional		1	7	2	1	....	3	....	3	....	....	....	....	....	2	....	....	....	1
Pharmacists		....	....	5	1	....	....	2	1	2	....	2	3	15	7	....	1	3	4
Assist. Pharmacists	400	....	....	....	....	....	....	....	....	1	....	1	....	2	3	....	....	....	1
Pharm. part time	to	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Apprentices	499	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Non-professional		....	....	....	....	....	....	....	1	....	....	....	3	5	17	....	1	4	18
Pharmacists		3	1	3	....	....	2	....	....	....	....	....	....	12	29	....	....	5	19
Assist. Pharmacists	500	2	....	....	....	....	....	....	....	....	....	....	....	1	6	....	....	2	6
Pharm. part time	to	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Apprentices	1,000	1	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Non-professional		....	1	....	2	....	3	....	....	....	....	....	1	8	20	....	....	13	19
Pharmacists		....	....	7	....	....	....	....	....	....	....	....	....	13	1	....	....	....	4
Assist. Pharmacists	Over	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pharm. part time	1,000	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....
Apprentices		....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Non-professional		....	....	2	2	....	....	....	....	....	....	....	....	7	3	....	....	....	....

*The figures for Pharmacists include the Assistant Pharmacists

Personnel Distribution

Prince Edward Island		Quebec		Saskatchewan		Alberta		British Columbia		Manitoba		New Brunswick		Nova Scotia		Ontario		Quebec		Saskatchewan		Veterans		National Defence		National Health & Welfare		TOTALS
Long Term Hospitals																												
M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M
....	....	....	1	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	2
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	2	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	3	2	....	1	....	....	1	....	....	....	....	....	....	....	1	....	1	....	....	....	1	....	1	....	....	....	11
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	....	....	6
....	....	2	1	2	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	1	18
....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
....	....	....	2	1	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1	2
....	....	....	2	....	....	....	....	1	....	....	1	....	....	....	....	....	....	1	1	....	....	2	....	....	....	2	....	12
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	3
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	1	....	....	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	6
....	1	3	4	3	2	....	....	....	....	....	....	....	1	....	2	....	....	2	....	....	....	4	....	2	....	2	....	43
....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	5
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
....	1	4	18	1	4	....	....	....	....	....	....	....	1	....	1	2	....	3	....	....	....	2	....	2	....	....	....	16
....	....	5	19	6	4	....	....	2	2	....	....	....	....	4	2	1	....	....	....	....	....	9	5	....	....	2	....	44
....	....	2	6	....	....	....	....	1	2	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	6
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
....	....	13	19	2	2	....	....	....	1	....	....	....	....	....	1	1	....	....	....	....	....	11	3	....	....	1	1	36
....	....	....	4	....	....	1	....	2	....	....	....	....	....	....	....	....	....	1	2	1	13	....	....	....	....	1	....	39
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2
....	....	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....	....	....	....	1	....	27	3	....	....	....	....	39

Distribution in Canadian Hospitals Employing a Pharmacist

National Defence		National Health & Welfare		TOTALS		Pharmacists Full Time		Assistant Pharmacists		Pharmacists Part Time		Apprentices		Non-professional	
M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W
.	....	....	....	5	7	5	7	....	....	....	....	....	....	....	....
.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.	....	1	....	2	....	....	....	....	....	2	....	....	....	....	....
.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.	....	....	....	....	4	....	....	....	....	....	....	....	....	....	4
	....	....	....	11	10	11	10	....	....	....	....	....	....	....	....
.	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....
.	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....
.	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....
2	....	....	....	6	5	....	....	....	....	....	....	....	....	6	5
.	....	1	1	18	15	18	15	....	....	....	....	....	....	....	....
.	....	....	....	1	1	....	....	1	1	....	....	....	....	....	....
.	....	1	....	1	....	....	....	....	....	1	....	....	....	....	....
.	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....
.	....	....	1	2	20	....	....	....	....	....	....	....	....	2	20
.	....	2	....	12	12	12	12	....	....	....	....	....	....	....	....
.	....	....	....	....	2	....	....	....	2	....	....	....	....	....	....
.	....	....	....	3	....	....	....	....	....	3	....	....	....	....	....
.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.	....	....	....	6	18	....	....	....	....	....	....	....	....	6	18
2	....	2	....	43	21	43	21	....	....	....	....	....	....	....	....
1	....	....	....	5	5	....	....	5	5	....	....	....	....	....	....
.	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....
.	....	....	....	1	1	....	....	....	....	....	....	1	1	....	....
2	....	....	....	16	49	....	....	....	....	....	....	....	....	16	49
.	....	2	....	44	67	44	67	....	....	....	....	....	....	....	....
.	....	....	....	6	15	....	....	6	15	....	....	....	....	....	....
.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.	....	....	....	1	2	....	....	....	....	....	....	1	2	....	....
.	....	1	1	36	54	....	....	....	....	....	....	....	....	36	54
.	....	1	....	39	7	39	7	....	....	....	....	....	....	....	....
.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
.	....	....	....	1	....	....	....	....	....	1	....	....	....	....	....
.	....	....	....	2	....	....	....	....	....	....	....	2	....	....	....
.	....	....	....	39	9	....	....	....	....	....	....	....	....	39	9
				TOTALS		172	139	12	24	7	2	6	3	105	159
						311		36		9		9		264	

ONTARIO HOSPITALS NOT EMPLOYING A PHARMACIST

	BED CAPACITY											
	50 to 99		100 to 149		150 to 199		200 to 499		500 to 1,000		Over 1,000 beds	
Number of hospitals in Canadian Hospital Directory	43		—51—				35		—31—			
No. of hospitals giving information	22		5		5		6		5		5	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Is the pharmacist required to be in attendance at all times?		17		3		5	1	3	1	1		2
Most of the times?	3	13	1	2	2	2	2	2		1	1	1
Is the responsibility for supervision over and distribution of all medicaments.. vested in a licensed Pharmacist?		19		3		2		5		3	1	3
—Chief Resident Physician?	3	9		2	2		4	1	4	1	3	
—Superintendent of Nurses?	15		4	1	2	1		2		2		
OTHER												
Registered Nurse							1		1		1	
Superintendent	2						1					
Assistant Superintendent	2										1	
Administrator	2											
Rx filled at another hospital					1							
Rx filled at local pharmacies	3											

The 1955 directory was carefully combed, province by province, and every hospital with 50 beds or more listed. Likewise, every one of these which gave the name of the pharmacist was listed in a separate list. A three page questionnaire was mailed to the administrator of each of these 673 hospitals. The replies were encouraging but we were not satisfied with the number. Hence, after several months, we sent the questionnaire again with an invitation for co-operation. More replies came in. In January, we made a third appeal to all those who had failed to reply and who, by our records, employ a pharmacist. Likewise, a fourth appeal was made early in February to the approximately 20% who had still failed to reply. The net result now stands at 84.4% replies from hospitals known, by our records, to employ a pharmacist.

We discovered from the replies that a considerable number of hospitals listing the name of a pharmacist in the directory do not employ a pharmacist. In other words, for directory purposes, the nurse or other personnel in charge of the dispensary was simply considered to be the pharmacist. Hence, we are not completely sure that all the 31 hospitals, which failed to reply to four invitations, really do employ a pharmacist. It is quite possible that several of these do not.

Information concerning the handling and dispensing of medicaments in hospitals NOT employing a pharmacist is interesting. This information from 72 hospitals in Ontario is scored in the chart on page 32. Some of the 72, of course, failed to fill in answers to all questions, hence we do not have 72 answers to all questions. Some simply wrote, "We do not employ a pharmacist, therefore, the questionnaire is not applicable."

H. J. FULLER I. E. STAUFFER

SOME AFTERTHOUGHTS ON FEES

Just before we sent out the first notice about annual fees for 1956, the Bulletin carried a short article telling how the annual registration was handled in our office. We tried to explain how you could help us with our work, by completing the forms fully and accurately. This year the fees reached us in the best form ever, and we must thank you all most sincerely for your co-operation.

We enjoy opening your letters, for it is like renewing acquaintances with an old friend. Often a cheery note is added, and some graduate we have not seen for a long time, just says "Hello" as he passes. One of the happiest things evidenced in the receipt of your letters is your co-operation. This was shown especially when we required explanations or adjustments. Pharmacy must be doing very well, for we received only two "rubber cheques". Back in the thirties I remember seeing quite a pile of them on the Registrar's desk. You know that being a tax collector has always been an unpleasant job, even from Bible times. I do not think we received one unpleasant letter—one was mildly sarcastic, but was so well written that we enjoyed it.

It is quite surprising to learn how many of our older members have achieved their fiftieth "Green Seal". We are glad to be reminded of this important event. Council has made arrangements that these veterans may be honoured.

During the past few weeks we have learned that a large number of stores are for sale, generally with "no bidder". Many of them are quite new stores, and most are in the Toronto area. It is a disturbing situation.

In a recent issue of another publication an article appeared in regard to the incorporation of pharmacies. I shall not go into the "pro and con" as this has been ably covered, but in the event that you may be considering a change from sole ownership to incorporation, I would like to mention a few points.

Your solicitor will channel the application for incorporation through the proper Departments. Usually the Provincial Secretary submits to us the details in regard to the Directorate, for our appoval.

Under the terms of the Pharmacy Act, every corporation shall, before commencing business, notify the registrar of the names and addresses of the directors and shareholders. If you consider opening a new pharmacy, to be operated as a corporation, we recommend that you arrange for your Charter well in advance of your proposed opening date.

No corporation shall operate a pharmacy unless the majority of the Directors are registered with the College; and unless a majority of each class of shares of the corporation is owned by and registered in the name of Pharmaceutical Chemists. (Pharmacy Act, Section 32 (1, 2).

As soon as the Charter has been granted, make sure that the company is properly registered with the College. For this purpose you should give us a complete list of the Directors; and a list of the shareholders and the number of shares (common and preferred) held by each of them.

The fees for corporations are higher than for individually owned pharmacies. The fees are due from the day the corporation commences business. The fees mount up, so be sure to notify us at the proper time. Any fees that you or your Directors have paid as individuals in the current year may be credited towards membership in the corporation.

Now for the schedule of fees. Let us consider the simplest kind of corporation, which has three Directors, two of whom are pharmacists.

Directors	A. M. Graduate	$15.00
	I. M. Chemist	15.00
	U. R. Carpenter	.....
Manager	A. M. Graduate	5.00
Pharmacists	A. M. Graduate	10.00
	I. M. Chemist	10.00
		$55.00

There may be many variations of the above, e.g. when there are additional registrations, and branches. If you will give us the details, we shall be glad to outline the fees payable.

H. M. CORBETT,
Registrar-Treasurer

WORTH WATCHING?

We enumerate here a number of movements taking place in the United States and suggest that we watch them carefully. There may be some food for thought here.

Legislation

Last year, two states passed laws declaring pharmacy to be a profession. The two states were California and Illinois. The California law reads:

"In recognition of, and consistent with the decisions of the appellate courts of this state, the legislature hereby declares the practice of pharmacy to be a profession."

Advantages—points up in public relations the fact that dispening a prescription for a client is not merely the transference of title to merchandise for a given sum of money but the performance of a professional act for which a **fee** is charged. The fact is clear that because the pharmacist is qualified by training to safeguard the public health, he should have the exclusive right to transfer medicines from their source to the final user. However, neither the courts nor the public yet appreciate this fact. By declaring pharmacy to be a profession the prestige of pharmacy as a profession would be enhanced.

A number of years ago the legislative body of one of the nations within the British Commonwealth of Nations declared that potatoes were a fruit; the reason, there was an embargo or quota or something of the sort on the importation of fruits in order to protect the fruit growers at home. Rather than change the law to include potatoes they legislated that potatoes were a fruit and therefore came under the act.

We can pass all the legislative acts we like to declare pharmacy a profession but will we convince the public unless we act accordingly? Certainly the public is not likely to believe us if we tell them over the radio that "His store is handy, he'll treat you dandy". Or are we just merchants with a college degree?

California

In 1955 California passed a law requiring drug manufacturers and wholesalers in the state to employ registered pharmacists, or other "qualified" persons, to supervise their operations. The California Board of Pharmacy is now promulgating regulations. It is proposed to require drug manufacturers who do not employ registered pharmacists to hire either a pharmacologist, a chemist, a biochemist, or a college graduate with at least two years of drug industry experience.

I would like to point out that more than five years ago the State of Connecticut passed a law which reads:

"No wholesaler or manufacturer shall operate as such until he has received a certificate of registration issued by the Commissioner of Foods and Drugs, which certificate shall be renewed annually. A fee of fifty dollars shall be charged for each such certificate and renewal thereof. No such certificate shall be issued to a manufacturer unless such drugs, medical devices or cosmetics are manufactured or compounded under the direct supervision of a licensed pharmacist or a qualified chemist, nor to a wholesaler unless such drugs, medical devices or cosmetics are dispensed under the direct supervision of a licensed pharmacist or qualified chemist."

Michigan

The Michigan Board of Pharmacy has recently promulgated five regulations pertaining to the dispensing and handling of drugs and medicines in hospitals. The five-point program is as follows:

"(1) The compounding, dispensing, and control of all drugs issued in hospitals shall be under the supervision of a registered pharmacist on a full-time or part-time basis. Hospitals unable to secure such services locally, from either hospital or retail pharmacists, shall consult with the board of pharmacy.

"(2) Hospital pharmacies shall be licensed by the Michigan Board of Pharmacy complying with the Michigan Pharmacy Act.

"(3) The Pharmacist-in-charge, with the approval of the director of the hospital. shall initiate rules, regulations, and procedures pertaining to the safe handling of drugs by hospital personnel. These rules, regulations, and procedures shall be designed to assure patient safety in the use of drugs and to assure compliance with state and federal laws concerning the handling of narcotics, barbiturates, and other prescribed drugs.

"(4) Nurses may procure from the pharmacy department, in order to carry out physicians' orders, those drug items which have been received, compounded, labeled, dispensed, or prepared for administration by or under the supervision of the Pharmacist-in-charge. These items may be procured by nurses under rules and procedures approved by the director of the hospital upon the recommendation of the pharmacist-in-charge.

"(5) Nurses or approved hospital personnel may, in emergency cases only, procure from the pharmacy department under direct order of a physician, drugs not specified in paragaph IV, which drugs are to be utilized and administered to the patient for immediate emergency; prompt record being made in the pharmacy department of the medications made."

The Fuller-Stauffer Survey of Hospital Pharmacy in Canada reveals that there are 673 hospitals in Canada with 50 beds or more. Of these 673 hospitals only 29.5% employ a full-time or part-time pharmacist. Some hospitals report that they have their prescriptions fiilled at a local pharmacy but the number of hospitals so reporting is very few. The number of hospitals in Ontario employing a part-time or full-time pharmacist is 26.5% of all Ontario hospitals with 50 beds or more. The chart on the inside of the back cover of this issue of the Bulletin reveals that only Newfoundland and Prince Edward Island score lower than Ontario.

The American Hospital Association reports that out of 6,447 hospitals reporting out of the 6,970 hospitals in the United States, 3,498 hospitals have a pharmacy department. The American Medical Association reports that out of 2,671 hospitals reporting, 4,157 full-time and 786 part-time pharmacies are employed. This works out to approximately one full-time pharmacist in a hospital for every 39,000 population. In Canada there is one pharmacist in a hospital for every 50,000 population. The Dominion Bureau of Statistics revealed recently that just over half of Canada's population receive health care of one kind or another during the course of a year.

An estimated:

432	people	out	of	every	1,000 see a doctor
102	"	"	"	"	1,000 spend some time in hospital
37	"	"	"	"	1,000 undergo operations
147	"	"	"	"	1,000 go to see a dentist
33	"	"	"	"	1,000 are examined for glasses

If the proposed compulsory Health Insurance plan of the Federal Government takes form in the near future, new hospitals will be needed. How many additional pharmacists will be required to staff **all** hospitals **properly**?

H. J. FULLER

CAREERS

Have you received inquiries from the High School Crowd in your area as to the kind of work a pharmacist does?

The Canadian Foundation for the Advancement of Pharmacy has prepared a poster, with black and white illustrations, approximately 23"x18", showing pharmacists at work.

One pharmacist who displayed this poster in his window reports that every time he glanced out (after school hours) students were gathered around the poster. He also reports that eight young people came into his pharmacy to ask about pharmacy as a vocation.

If you have been suffering because of the shortage of graduates, you can help the situation by directing some young person into one of the branches of pharmacy where there is a real opportunity for trained men and women. You might place the poster in your window, brighten it up by attaching the school colours or crest, and extend an invitation to come in and discuss opportunities in pharmacy.

If you would like to receive one of these posters, please drop us a note and we shall send it to you.

Our members are also sometimes asked to address service clubs or student groups on Pharmacy. We shall be glad to supply you with material for preparing your address or for presenting the story and opportunities of pharmacy. There are more than three hundred students enrolled in pharmacy at the University of Toronto, but this is not enough to meet the needs. Every branch of pharmacy—retail, manufacturing, hospital, research, teaching and detailing, is expanding. Bright young men and women can find a satisfying field of endeavour in this profession.

H. M. CORBETT,
Registrar-Treasurer

AS A C.PH.A. MEMBER DO YOU KNOW THAT

—The Convention will be held in Ottawa, August 12th to 16th.

—The President is our own P. T. Moisley, Timmins, a Past-President of the College.

—Any members are welcome to sit in any Council Meetings as observers for the first time this year.

—A new type of programme of particular interest to all practising pharmacists will be featured.

DO YOU "DISPENSE" WITH ACCURACY?

After one has been working in a particular field or doing a particular job, there is frequently a tendency to attempt too many shortcuts. It is therefore a wise idea for us all to make an honest appraisal of our methods and techniques. Probably the most frequent slogan used by pharmacists is either "Prescriptions Accurately Dispensed" or "We Dispense with Accuracy".

The first slogan is indicative of the type of technique which should be followed in any pharmacy. However, in some cases there is a lackadaisical attitude and I feel that some people do **dispense** with accuracy.

Let us consider just two of many cases. The simple procedure of compounding an ointment and the choice of container for liquid preparations.

In the first case when it is required to prepare an apothecary ounce of an ointment, it seems there is the tendency for some pharmacists to simply fill the ointment jar with the base, scrape this out and use this amount of base. It takes very little time to weigh the amount of base required, so why should we not do it. This particular fact was most forcefully pointed out this year when one of the students who has been working in a dispensing pharmacy for some time followed this type of procedure of **not** weighing the base. You will be interested to note that in preparing his ointment, he had a variation of 88 grains. This means then that the ointment prepared varied from the required strength by almost 20 per cent.

The choice of container used for liquid preparations is the second item listed. The idea of measuring in a graduate **not** in a bottle is a factor also. All too frequently, we see American bottles on the Canadian market. We should remember then that, although the American liquid measure is smaller in the total number of ounces in a pint, quart or gallon, the American fluid ounce is larger. What does this mean to us then? Simply this. It could cost the pharmacist a great deal of money. Let us take a rather extreme case and consider it. You have just received a prescription for 6 fluid ounces of an antibiotic-containing syrup, with a list price of $40.00 for 16 fluid ounces. Dispensing this product in a 6 fluid ounce bottle of American measure would result in this variation (approximately 2 fluid drachms).

This can readily be determined as follows. 6x456.4 gr. (Weight of an American fluid ounce) minus 6x437.5 gr. (Weight of a Canadian fluid ounce) = 113.4 gr. As can be seen quite readily, the variation here is almost 2 fluid drachms. The loss to the pharmacist in list price material is approximately 63 cents on this prescription. True it is a small amount but nevertheless all pharmacists should be sure their containers are proper size and that all materials used are weighed or measured accurately.

It would be most revealing indeed if there was the supervision of the dispensing pharmacy that there is in many countries. The procedure is simply this. The pharmacy is given a prescription and after it is filled the purchaser identifies himself takes two containers and divides the prescription into two portions. These portions are then sealed and one container is taken by the inspector and the other is given to the pharmacist. The product is assayed and if the varia-

tion in strength is beyond allowable limits, the pharmacist is required to explain. This type of supervision we don't want, so why not do away with any suggestions from anyone that it should be enforced. How to do it?

Take the extra few minutes to accurately dispense your product and do not get into the habit of "dispensing" with accuracy.

D. R. KENNEDY

ARE YOU INTERESTED IN PUBLIC RELATIONS?

Attention of the readers is directed to a recent textbook by William H. Hull, "Public Relations and the Pharmacist", published by Lippincott. Although we have not yet had an opportunity to read the book, the topics discussed and the approach taken appear to commend this as a book badly needed in Pharmacy. The emphasis is on the individual pharmacist and his relations with the public.

NEW AWARDS IN THE FACULTY OF PHARMACY

During the past several months six new awards have been established by various donors for students in the Faculty of Pharmacy. These include two admission bursaries, one admission scholarship, two undergraduate scholarships and a gold medal. The donors include three pharmaceutical companies, one individual pharmacist, a fraternity and the Canadian Foundation for the Advancement of Pharmacy.

Details of the individual awards are as follows:

Rho Pi Phi Admission Bursary—$200. Open to Grade XIII students in Ontario. Awarded on the basis of financial need and academic standing. Application forms available from the Secretary of the Faculty.

The Foundation Admission Bursary—$250. Open to Grade XIII students in Ontario. Awarded on the basis of financial need and academic standing of at least second class honours. Application forms available from the Secretary of the Faculty.

Abraham Bergson Admission Scholarship—$200. Open to Grade XIII candidates at Earl Haig Collegiate, Willowdale, enrolling in the Faculty of Pharmacy with at least second class honours.

Burroughs Wellcome Scholarship—$250. Presented by Burroughs Wellcome & Co. (Canada) Limited to the student who stands highest in first class honours in the examinations of the First Year.

Poulenc Award—$250 and a medal. Presented by Poulenc Limited. Awarded to the candidate who stands highest in the examinations of the fourth year and who undertakes to commence a programme of graduate studies in this or some other Canadian university. A candidate who fulfills these requirements and who plans to major in Pharmacology may be given preference.

Frank W. Horner Gold Medal in Hospital Pharmacy—Presented by Frank W. Horner Ltd. Awarded to the candidate who has elected Hospital Pharmacy Administration options, obtained at least second

class honours in the annual examinations and who ranks highest in first class honours in the subject of Hospital Pharmacy Administration.

In addition to the above awards which have been established within the University of Toronto, various local pharmaceutical associations in Ontario have established admission awards open to candidates of local secondary schools. In this category have come to our attention the Essex County Retail Pharmacists Association Bursary, South Waterloo Pharmacists Association Bursary. The Ladies' Auxiliary to the Hamilton Pharmacists Association Bursary in Honour of Katherine McAuley. Several other local pharmaceutical associations have indicated their intention to establish awards and may have done so recently. We would certainly commend to local groups this means of encouraging candidates to enter Pharmacy. Such awards also provide good public relations for the profession.

The above awards are all very recently established ones and are in addition to a large number which have been given for varying lengths of time, such as The Ladies' Auxiliary to Toronto Pharmacists Bursaries, United Casualty Agencies Bursaries, Foundation Scholarships, P. T. Moisley Prize, William Hultay Bursary and the M. A. Starkman fellowship, to mention only a few.

F. N. HUGHES

POPULARITY OF THE BULLETIN

Requests for copies of the Bulletin of the Ontario College of Pharmacy have been received from England, Holland, Denmark, Sweden, Australia, India, Turkey, and the United States.

Requests for permission to reprint certain articles have been received (and granted) from the Western Druggist, and Chemist and Drugstore News of Bombay, India.

The Bulletin, by request, is now exchanged with the following:

Federation Internationale Pharmaceutique Bureau,
196 Bilderdijkstraat,
Amsterdam (W),
Holland.

Kungl. Farmaceutiska Institutets Bibliotek,
Kungstensgatan 49,
Stockholm Va,
Sweden.

Chemist and Drugstore News,
31 Hamam Street,
Bombay,
India.

TABLE 1

Province	No. of Hospitals with 50 beds or more	Total number of Replies	% of Replies to No. of Hospitals with 50 beds or more	No. of Hospitals Employing a Pharmacist	% of Hospitals employing a Pharmacist to No. of Hospitals with 50 beds or more	No. of Replies from Hospitals employing a Pharmacist	% of Replies from Hospitals employing a Pharmacist to No. of Hospitals employing a Pharmacist
Alberta	48	26	54.1%	17	35.4%	16	94.1%
British Columbia	59	37	62.7%	17	28.8%	17	100.0%
Manitoba	28	18	64.2%	10	35.7%	9	90.0%
New Brunswick .	24	15	62.5%	8	33.3%	7	87.5%
Newfoundland	11	4	36.3%	1	9.0%	1	100.0%
Nova Scotia	41	24	58.5%	12	29.2%	12	100.0%
Ontario	234	134	57.2%	62	26.5%	62	100.0%
Prince Edward Island	6	2	33.3%	1	16.6%	1	100.0%
Quebec	178	56	31.4%	55	30.9%	28	50.9%
Saskatchewan	38	30	79.0%	16	41.0%	15	93.7%
Yukon & North West Territories	6	3	50.0%	0	0.0%	0	0.0%
TOTAL	673	349	51.8%	199	29.5%	168	84.4%

Ne Plus Ultra IN CORTICOSTEROID THERAPY

systemic

Deltacortril* tablets

BRAND OF PREDNISOLONE

as scored, 5 mg. oral tablets

Potent analog of hydrocortisone; antirheumatic, antiallergic, antiphlogistic; effective even where other steroids fail; virtually devoid of major hormonal reactions

topical

Cortril*

BRAND OF HYDROCORTISONE

topical ointment 1.0% and 2.5%

acetate ophthalmic ointment 0.5% and 2.5%

Unsurpassed anti-inflammatory, antiallergic therapy for dermatitis or superficial eye disorders

acetate aqueous suspension ***for intra-articular injection*** 25 mg. per cc. Local antirheumatic therapy of choice in arthritic joints — without systemic effects

topical combination

Terra-Cortril*

BRAND OF OXYTETRACYCLINE HYDROCHLORIDE AND HYDROCORTISONE

topical ointment containing 3% TERRAMYCIN*† and 1% CORTRIL

ophthalmic suspension containing 5 mg. TERRAMYCIN and 15 mg. CORTRIL per cc.

Combined anti-infective, anti-inflammatory therapy for skin and eye disorders of infectious origin or those complicated or threatened by secondary microbial invasion; unites the established antibiotic range and the therapeutic and prophylactic predictability of TERRAMYCIN with the outstanding topical activity of CORTRIL

Pfizer *World's Largest Producer of Antibiotics* VITAMIN-MINERAL FORMULATIONS HORMONES

PFIZER CANADA *Division of Pfizer Corporation, Montreal 9, P.Q.*

*TRADEMARK OF CHAS. PFIZER & CO., INC. †BRAND OF OXYTETRACYCLINE HYDROCHLORIDE